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Missouri Historical Society

Department of Archaeology

BULLETIN I

PREHISTORIC OBJECTS

CLASSIFIED and DESCRIBED

By GERARD FOWKE

Price 25 cents

Published by the SOCIETY

Jefferson Memorial

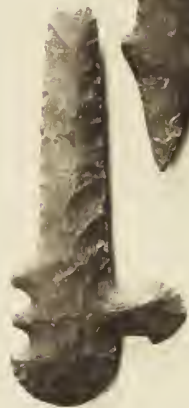
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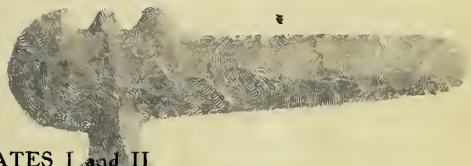
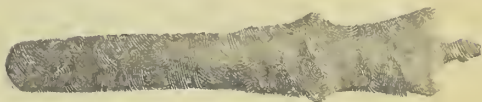
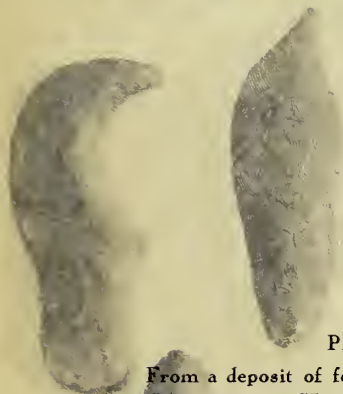
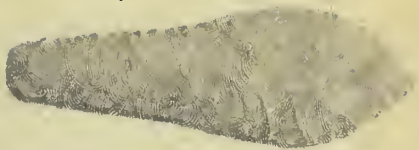
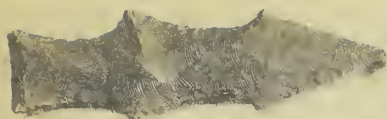
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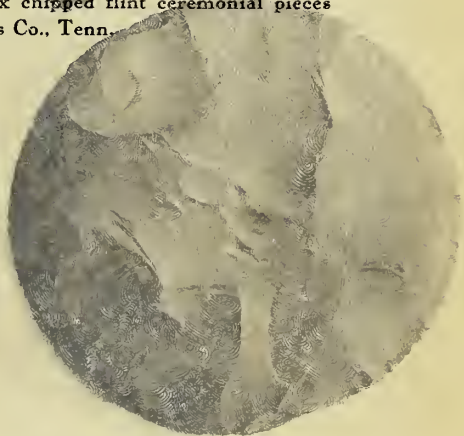
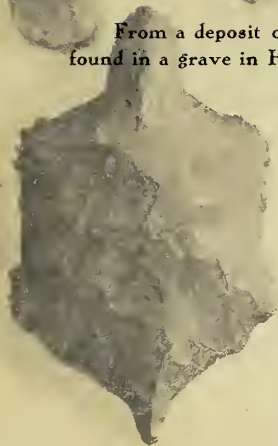
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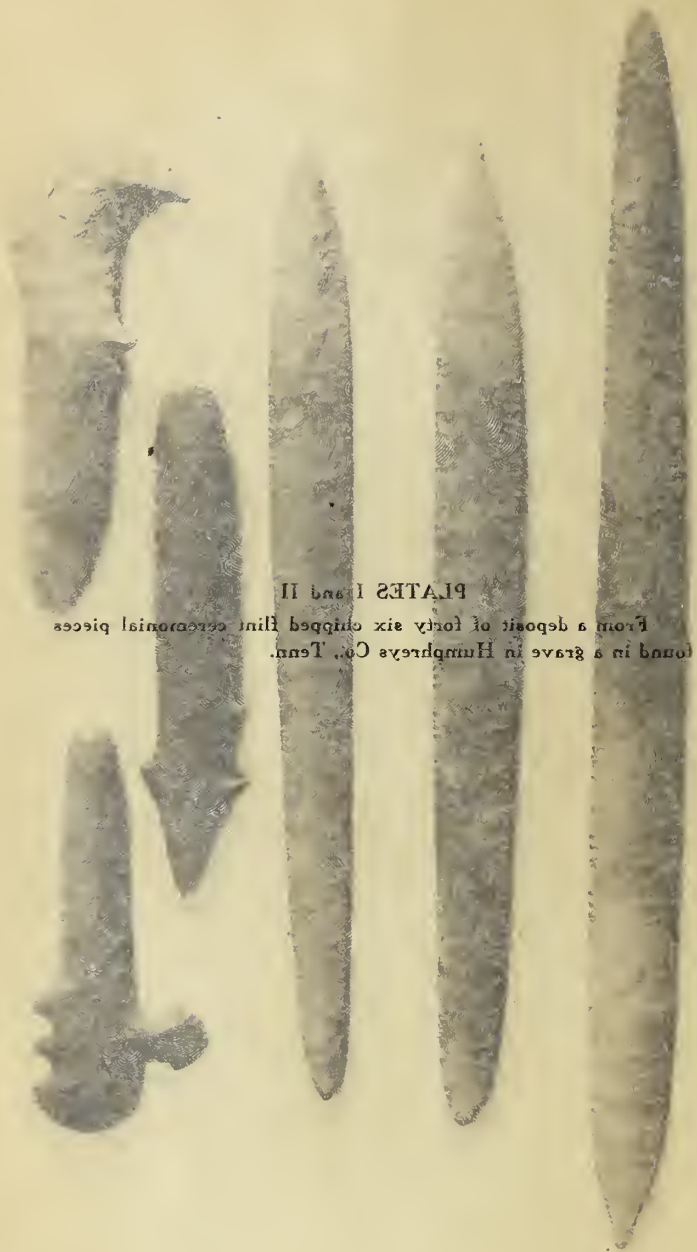




PLATES I and II

From a deposit of forty six chipped flint ceremonial pieces
found in a grave in Humphreys Co., Tenn.





PLATES I and II

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MISSOURI ARCHAEOLOGY.

The object of the following paper is to present as briefly as possible some information about Missouri's primitive inhabitants.

The general tendency is to regard all Indians as being on the same plane; to consider that "an Indian is an Indian, like any other Indian." This is a mistake: there was the same relative, though perhaps not the same actual, difference among individual Indians that exists among whites. Some were treacherous, and cruel as savage wild beasts. Others were honorable, grateful for kind treatment, and ready at all times to make personal sacrifice for one who had befriended them.

Each tribe or community had to sustain itself. There were no courts nor tribunals to which disputes could be referred, and when quarrels arose war was the only alternative to humble submission. The barbarian's code of ethics demanded that he inflict the greatest possible loss upon an enemy, and suffer but little in return. Any methods by which this result could be reached were considered fair. Consequently, the weak or timid were destroyed or enslaved.

From what we can learn of them, it seems that nearly all Indians of the eastern United States were given to roving from place to place as the whim prompted them. Sometimes a tribe would remain in one locality for perhaps several generations, then branch off in colonies which sought new homes, or remove elsewhere in a body. This restless feeling led the early Indians of Missouri to divide into many sub-tribes, which presently became as strangers or even as enemies to one another.

The general conditions of existence among Indians who lived mainly by agriculture were practically the same that prevailed among those whose principal dependence was upon the chase. But in details there was much difference in the habits

of the two classes. Their customs, occupations, and particularly their relations with neighboring tribes, took form from the varying modes of life. The pursuit of game led to the hunting of men; labor in cultivating the soil developed a certain degree of respect for the rights of others.

The Museum collection of the Missouri Historical Society shows, as far as can be shown by such means, the degree of culture which was attained along these lines by our predecessors. Clay vessels and large digging-tools denote a residence in somewhat permanent villages; tomahawks, arrowheads, and spearheads point to a hunting life; knives, pipes, and articles for display or personal adornment belong equally to both conditions.

Careful study of the specimens here exhibited will show that both the farming and the hunting Indians were well represented in the territory surrounding Saint Louis. But the two methods of life were not necessarily separate and distinct, either in a given locality or at a definite period of time. They often existed side by side; and there were also periods of transition when they merged into each other, or when a tribe changed from one to the other as it gradually advanced or receded in the struggle with natural forces or with human foes. Many times, no doubt, the two stages followed in rotation on the same ground when successive migrations swept over it, as wave after wave, each independent of, yet similar to, the others, moved along the surface of great rivers which formed the Indian's highways into unknown regions.

THE ABORIGINES.

All Indians who were native to Missouri at the time the first white men came to the country belonged to one great family, the Siouan, so called from its principal modern tribe, the Sioux. They formerly lived along the Atlantic Coast, whence they migrated slowly westward by way of the Kanawha and Ohio valleys. Upon reaching the mouth of the Ohio river several centuries ago they divided. One branch, the Quapaws ("Down-stream"), went southward. The other branch, the Omaha ("Up-stream"), moved northward.

They lived for several generations on and near the site of Saint Louis. At that time the "American Bottom" lay mostly on the western side of the Mississippi. This river, below the Missouri, followed closely the foot of the Illinois bluffs, east of Cahokia Mound, thus forming a level area three or four miles wide as a fringe to the Missouri upland. The combination of fertile land, numerous streams, and broken country, made the region an ideal location for Indians. But their roving spirit prevailed, and they gradually followed diverging streams toward the west and north into the regions where the whites found them, subdividing as they went, into various tribes, the Missouris, Osages, Kaws (Kansas), Iowas, Otoes, and others, one of which still retains the name "Omaha".

MISSOURI MOUNDS.

The large mounds in the vicinity of Saint Louis and those of southeastern Missouri seem to have been constructed before the Siouan tribes came west. Who these Mound Builders were is not known; but they were probably offshoots or colonies from tribes on the lower Mississippi. The mounds in other portions of Missouri are small, though quite numerous in some sections. Many of those along the bluffs of the Missouri river and a few of its tributaries contain vaults or chambers made of flat stones laid up like the walls of a cellar. These are often called "underground houses", but they were intended solely for burial purposes. No mounds with similar vaults have been reported from any other part of the United States.

As every object yet obtained from these vault mounds is clearly of Indian manufacture, the structures must be older than the period of earliest French or Spanish exploration. Thorough examination of more than fifty of them disclosed hundreds of decayed skeletons as well as the ashes of hundreds of bodies which were cremated before burial. Every article possible to preserve that was found during these excavations may be seen in cases 6 and 8.⁽¹⁾

(¹)—A full report of these explorations appears in a little volume entitled "Antiquities of Central and Southeastern Missouri", published as Bulletin 37 of the Bureau of American Ethnology, Washington, D. C.

INDIAN LIFE.

Among Indians of the central Mississippi valley continual struggle with hardship and privation was the price of existence. Even amid comparatively favorable surroundings merely to live was a problem for old and young alike. Though many children were born, families were generally small, as only the healthiest or those who received better care than the average could hope to reach maturity. A large majority of remains found in the burial places are those of young children. Confronted from infancy to old age with inclement winters in cold wigwams; alternate gluttony and starvation; improper treatment in sickness or accident; perils of the chase; helplessness in time of epidemic; attacks of foes;—their lives were never secure for a day. Their revengeful disposition, leading to constant warfare, prevented the formation of settled communities. Nor could they have risen higher in the social scale, for they had no large domestic animals and they knew nothing of iron.

In such manner of living no people can become numerous. A large town can not be supplied with animal food when hunters must go into the wilderness to find it. Their crude implements prohibited extended agriculture. Clearing land for cultivation with no aids except fire and sharpened stones or pointed sticks, was a dispiriting task. Driftwood, fallen branches from the forest, or pieces from dead logs, formed the only fuel. Fire was obtained by rubbing a piece of wood back and forth in a groove or rotating it in a depression in another piece; with either method the motion must be sufficiently rapid and continuous to produce a fine powder and bring this to such heat by the friction that it would ignite. Food was baked by covering it with ashes and hot coals; or roasted by impaling it on the end of a stick and holding it near the fire; or boiled in pots. As few of the pots could stand direct exposure to fire, the food was placed in them, with water, heated stones thrown in, and the vessel tightly covered. For cutting meat, slivers of cane and sharpened shells as well as flint knives were used. The bark of various plants was twisted and made into cloth with several patterns of weaving; but as the cross threads had to be

passed by hand the process was tedious, and so skins were mostly used for clothing and shelter. Pelts could be tanned with or without the hair. Deer skins were dressed as soft as fine cloth. In sewing, small holes were made with flint or bone awls or thorns, and threads of sinew, rawhide, or fiber passed from side to side.

Such elementary methods represent the highest development of Indian life in Missouri. The primitive weapons, tools, and implements prevented attainment of better results.

WROUGHT OBJECTS.

The archaeological collection of the Missouri Historical Society contains practically every form of prehistoric relic found within a radius of a hundred miles around Saint Louis. Typical specimens are shown in the main room; there are others in the basement. Pottery presents an almost infinite variation in details; but nearly every distinctive shape occurring in the State is displayed in the upright cases. Other objects, including some that are modern, are in the flat cases. A few articles from foreign sources are also shown.

DEVELOPMENT OF INDUSTRIES.

The character of prehistoric art in any particular locality and the degree of perfection attained in its elaboration depend largely upon the materials readily accessible. For instance, where clay of suitable tenacity and working quality exists, the manufacture of pottery will predominate over other industries; where flint of close grain, free from impurities, is easily procured, the art of chipping will reach its highest development; where osier willows and strong grasses grow plentifully, artisans will excel in basket making. So with other substances; whatever is most abundant and most suitable for working will be most freely utilized and most skillfully wrought.

Throughout the region around Saint Louis there is an abundance of hard tough stones, as granites, diorites, and the like, which were carried from the north by glaciers; consequently there are many grooved axes, tomahawks, corn crushers, and other implements used as weapons and tools in war, hunting, or for domestic occupations.

Because of the extreme hardness of flint it is sometimes insisted that Indians must have had a metal much harder than steel with which they "cut out" arrowheads and other implements. The statement is frequently made, also, that some early races had learned how to "temper" copper to the required degree. Neither is correct. No such "lost art" ever existed in any part of the world.

There are two general methods of shaping stone objects: pecking, and flaking or chipping. Both processes are often employed on the same stone. The first method, in which a rough block is brought to the desired form by blows with a stone hammer, is usually resorted to in stone other than flint. To remove the marks left by the hammer, the specimen is rubbed down with grit-rock. In the second method, mostly applied to flint, a stone hammer may be used to strike off spalls until the block is reduced nearly to the desired form; but the implement is completed by pressing off flakes and chips, usually with bone tools.

It would naturally be supposed that to peck out a stone ax, for example, using no other tool than a hammer of similar material, would require much time and infinite patience. But at the National Museum, with only jasper hammers for shaping and quartzites for smoothing, a block of nephrite, the hardest and toughest rock known, was converted into a well-formed ax, grooved and polished, in sixty-six hours of actual working time. From another rock, a little softer than granite, a grooved ax was completed in two hours. An Indian has been seen to make a symmetrical arrowpoint or knife of flint in from five to ten minutes; a rougher but serviceable one in a minute or two.

A rough implement would seem to be of greater antiquity than one which is finely finished. But a workman possessing the skill to make beautiful articles might not choose to exercise it on every piece. Crude work has always prevailed everywhere. The small proportion of artistic specimens, as compared with the vastly greater number of rougher ones, so far from having any bearing on the age of either, probably means

that relatively few persons in a tribe were capable of doing fine work. At any stage of existence an implement or utensil will be hastily made to meet an emergency. A hunter or warrior who finds himself without a weapon, or a woman who has no kettle, will not waste any time in carefully finishing a stone, or molding a clay pot, when both know that a much better article made of iron can soon be procured from a trader. So rude specimens, especially those sometimes called "paleoliths", may be quite recent instead of very ancient.

Missouri is especially rich in hematite iron ore; and we find it worked into forms surpassing in numbers, varieties, and size, articles of this material elsewhere. The most extensive aboriginal mine of this ore known is in Franklin county, where a great amount of it was quarried for making paint, as well as for implements.

The Lower Carboniferous limestones of Missouri and Illinois contain immense deposits of flint or chert suitable for flaking; and where the weathering of the bed rock released this it was easily obtained by the Indians. Large hoes and spades are made of it, while the delicately wrought knives, spears, and symmetrical ceremonial implements chipped from the finer grades are unrivaled except in a few localities where obsidian or agate-like stone is to be had.

In southeast Missouri the above substances are lacking, but the clay of that region is excellent for the manufacture of pottery, and vessels of manifold patterns are found more plentifully there than anywhere else in the country, unless in the Pueblo villages of the southwest.

Copper, thick shell, and slate or other stone used for pipes or ornamental objects, are almost entirely absent from the State and the comparatively few specimens found, made of such substances, are mostly of foreign origin.

Some authors and collectors contend that relics obtained from mounds surpass in beauty and finish those gathered from the surface. This assertion is entirely incorrect. Many articles of perishable substances which would soon decay were they not protected by the covering of earth, have been exhumed

from mounds; but nothing which implies a higher stage of artistic development than is known to have existed in various modern tribes. In durable material, such as stone, no distinction exists between the two classes.

QUANTITY OF SPECIMENS.

The most remarkable fact about aboriginal relics is their great abundance. Collectors go over the same fields year after year, seldom failing to find something worth preserving. Wherever Indians have lived the clearing away of a forest, the cultivation of an old meadow, discloses a new source of supply. Even in rugged country, remote from any spot fit for settlement, not only weapons of the chase, but various objects of personal use or ornament occur in quantity.

This profusion may be explained in several ways. Primitive people, like some individuals in civilized communities, are often reluctant to use any small article whose original owner is dead, or at least has recently died, lest the "spirit" may resent it. Persons whose time or labor is of slight value, or who have nothing beyond bare necessities, are usually careless of the little they do possess. Many specimens were lost in the fields and forests; many others were thrown away with the refuse about the houses. When a village was destroyed or deserted all that was left in it would presently be buried by natural accumulation of soil or vegetation. Superstition or childish petulance also had much to do with the matter. An arrow that had killed a deer, a hook that had caught a large fish, would be highly prized as "lucky"; while one which failed of its purpose would be thrown away or broken in punishment. Indifference to future wants; personal skill in making needed articles; convenience to those who had them for sale:—are further reasons why a barbarian will procure a new weapon rather than look for an old one. Moreover, these conditions have prevailed throughout the thousands of years during which the country has probably been inhabited.

The worked objects will now be described.

ABORIGINAL WORKED OBJECTS.

AXES, ADZES, AND CELTS.

The principal difference between an ax and a celt is that the ax has a groove around it for securing the handle, while the celt is usually regular in outline. Though both forms vary greatly in size, the average ax is larger than the average celt. The term "celt" (which means "chisel", though very few celts have the slightest resemblance to a chisel) has now come into general use; but the name "hatchet" or the Indian name "tomahawk" would be preferable. An ax rarely has two grooves; while both axes and celts sometimes have a cutting edge at each end. The names of the different parts of these implements are indicated in figure 1.

Grooved axes, though never found in mounds, are abundant on the surface in the central States, gradually diminishing in numbers toward the east and west. They are rather rare in other countries. Celts, however, are frequent in mounds and occur in every part of the world.

The most common method of hafting axes and celts was to twist a withe of tough wood around the body of the implement and secure it with rawhide or sinew, which binds like wire. Sometimes a small branch was split, a celt inserted, and left until the wood had grown firmly around it. One such specimen, of unknown age, in the original handle, is in case 4.

Some tools resembling these were intended to be used as adzes. They have one face convex, the opposite one flat, and in proportion to their other dimensions are much longer than axes or celts. In hafting an adze the edge was set at right angles to the handle.

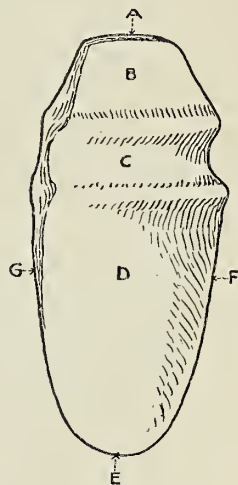


Figure 1

A, top; B, poll or head; C, groove; D, blade; E, edge; F, back; G, front.

Examples of all these specimens, some of them hafted to show how it was done, can be seen in cases 2, 4, and 12. (See plates iii, iv and vi.)

It would seem impossible to do any but the crudest work with stone axes and adzes; but we have abundant evidence that primitive peoples in many parts of the world used them to cut timber, split and dress boards, and make canoes which would carry fifty or more men in rough water. Trees were felled by applying fire near the root and cutting away the charcoal as the fire burned deeper, a plaster of mud preventing the flame from extending higher than it was needed. By the same means logs were cut into desired lengths and hollowed into canoes and mortars. Much other work was done with these tools and with similar ones made of heavy shells.

PITTED STONES AND HAMMER STONES.

The most abundant of larger implements are water-worn pebbles with a pit on each face varying from a slight roughening of the surface to a hollow pecked half an inch deep. The material varies, but is mostly a gritty sandstone. They are very plentiful around village-sites and may have served to some extent for hammers, though their principal use was to pound tough meat and break up bones for obtaining the marrow.

Hammers, which are also numerous, show every stage of work from the scarcely altered pebble or rough fragment to the highly polished round ball, and the slender double-pointed ovoid. They are usually of the hardest available stone; and while used in their earlier stages merely as tools to fashion other implements they were assigned to specific uses of their own when completed, most commonly for club heads. Some are grooved for hafting; ungrooved forms were fastened to a handle by a covering of leather or rawhide. Specimens (modern) are in case 30.

Stones roughly grooved were also used to sink nets in fishing.

Hammers and pitted stones are shown in cases 14 and 18. (See No. 3, plate xiii.)

GRINDING AND POLISHING STONES.

Grit-rock, quartzite, and sandstone, in varying degrees of fineness, were used to smooth stone, wood, shell, bone, and whatever else required such finish. A few examples are placed in case 18. Hard smooth stones served a similar purpose in the manufacture of pottery.

CUPSTONES.

Next in number to pitted stones and hammers are the objects known as cupstones. It is a singular fact that although these are found in great plenty in every part of the world no one has yet offered a satisfactory explanation of their purpose. They are almost invariably of reddish sandstone, varying from a few ounces to thirty or forty pounds in weight, and are always unworked except for the cups. The latter are hemispherical depressions from one to twenty-five in number, of various sizes even in the same stone, though seldom more than two inches in diameter, and follow the natural contour of the stone even when this is quite irregular. Flat or thin slabs have the cups on both sides, while blocks or thick pieces have them on only one side. Because they are found in great numbers on the sites of old villages it is supposed they were used to crack nuts on; to steady spindles in weaving; to contain tinder in making fire with a twirling stick; and in connection with various other domestic occupations. But they are also found in abundance in situations where none of these explanations will apply. Moreover, for every cupstone which will support any given theory there are a hundred others which will contradict it.

One is shown in case 20; the opposite side of this is a mortar.

MORTARS AND PESTLES.

Various grains, either wild or cultivated, and many kinds of nuts and seeds, were used as food by Indians, being made into bread or mixed with other substances in cooking. They were crushed and ground into meal with mortars and pestles; which were sometimes of wood, though usually of stone. Sandstone of medium grain was the most common material for mor-

tars. Sometimes the depression in them is long and shallow, as if a rubbing-stone was employed; again, the cavity is so deep that only a pestle could be used with it.

Pestles are generally of granite or other hard rock pecked into shape convenient for a firm grasp. The forms most common are those with a tapering or cylindrical handle and expanding base; and those which are uniformly conical or cylindrical. In either type the base may be flat, or convex, or a curved plane. Any form of base may be smooth from rubbing back and forth or with a rotary motion; or rough from being used for pounding. A rolling or rocking motion was probably given to those having a curved base.

Another form of corn crusher, the muller, has a round or elliptical outline, with one side flat, the other convex. As grinders, these were equally serviceable in a hollowed mortar or on a flat stone. The roughened perimeter of many indicates that the muller was a hammer or a pestle as the occasion demanded.

Mullers and pestles are shown in case 18, mortars in case 20. (See plate iv.)

PERFORATED STONES.

Large perforated stones are almost unknown in the Mississippi valley; but they were used in many other parts of the world as sinkers for nets; heads for war, hunting, and fish-killing clubs; pestles and grinding stones; meat and bone crushers; weights for digging-sticks, hoes, or spades. Small ones were for weights on spindles and fire-sticks; and the smallest for counters in games, or for buttons, being attached with knotted cords to the garments.

A few may be seen in case 14.

PIPES AND TUBES.

It is said that modern Indian tribes have a separate pipe for every occasion; as a peace pipe, council pipe, medicine pipe, pipe for ordinary smoking, and so on, each being reserved for its own particular purpose. If this statement be correct it will help to explain the almost endless variety of form and decoration found in these objects.

Certain forms seem to prevail in certain districts; for example, the Ohio Mound Builders, the Cherokees, the Sioux, each made pipes which, however different they may be among themselves, yet have a distinctive appearance which enables the collector to assign to their proper place many specimens of whose history he is ignorant. From southeast Missouri and central Kentucky southward very large pipes of peculiar forms occur; some are plain, others are effigies of bird, animal, or human figures.

Pipes are made of every material from soft clay, burned, to quartz crystal; and the amount of work on some of them shows they were among the most cherished possessions of their owners.

Besides pipes, the Indians used tubes for tobacco holders; though the latter also served for other purposes, especially for bleeding or cauterizing in treatment of diseases. By setting one end over a puncture in the skin and sucking vigorously at the other end blood could be drawn safely; while by similarly placing the tube and filling it with hot water or live coals blisters could be induced.

The pipes and tubes in the Museum are not numerous, but they present a considerable array of types, as may be seen in case 24. (See plate v and No. 4, plate xiii.)

A few from mounds along the Missouri river are in case 6; and in case 28 are some made by modern Indians.

DISCOIDALS.

Much has been written concerning discoidals; but we still know very little in regard to their functions. They exhibit all stages of form and finish, from waterworn pebbles to short cylinders; to polished stones concaved on both sides, some of these perforated at the center; and finally to thin rings. The material ranges from clay or steatite to quartz and jasper. They occur from western Missouri to the Atlantic but are most plentiful in the region traversed by the lower ranges of the Appalachians, where the finest specimens are found.

A common name for them is "chunkee stones", from the fact that nearly all Indian tribes of the United States used a

stone disk or ring, or a hoop partially covered with rawhide, in a game which the Southern Indians called "Chung-kee". In this game the stone or hoop was rolled on the ground and at a certain point spears were darted at it by the players. But the brittleness of most of these stones and the great amount of labor necessarily expended upon the finest make it very improbable they were subjected to any rough usage.

Discoidals may have the natural surface on both sides with the edge worked off by grinding or pecking, the latter marks probably produced by use as a hammer; the sides may be ground down while the edge is untouched; the sides may be pecked and the edge ground, or the reverse. Moreover, these relics merge so gradually from the highly polished "chunkee stones" into mullers, pestles, pitted stones, hammers (for any or all of which purposes they may have been employed in the course of their manufacture), ornaments, and the perforated sinkers and club heads, that no dividing lines between all of these forms are possible.

Practically every form of discoidal is presented in case 22. (See No. 1, plate xiii.)

CEREMONIALS.

Under this general heading, applied because of their supposed functions, are grouped a great number and variety of objects made of stone, metal, hematite, shell, bone, and clay. Bearing a score or more of arbitrary names, they are classified by various writers and collectors as ornaments, charms, amulets, insignia of rank, badges of authority, or anything else the namer feels disposed to call them. Some were evidently suspended by a cord; others seem to have been mounted on a staff; still others give no hint as to how they were secured. No doubt each form had a definite meaning among the people who used it, just as society pins, badges, epaulets, or other marks of rank or service have among us; a meaning known only to the initiated or the instructed. The term "ceremonial" in this connection, has been well defined as "a good word to express our ignorance."

The most convenient general division of polished ceremonials is into gorgets, bannerstones, and "miscellaneous".

Gorgets are flattened, with one or more perforations through the shortest diameter. Those with one perforation were "pendants" for suspension; others were probably tied to a robe or a garment.

Bannerstones are perforated from end to end, the two halves of the stone usually being symmetrical, though one face is sometimes more curved than the other. Unperforated specimens of these two forms are, no doubt, for the most part unfinished.

"Miscellaneous" includes boat-shape, pick-shape, spool-shape, bird-shape, and others, which are named for their resemblance to the things indicated, as well as those which can only be thus conveniently classified. (See Nos. 7 and 8, plate xiii.)

Some of the many forms are exhibited in case 26. These show that in making a ceremonial the stone was reduced as much as possible by having chips and flakes struck off from it with a hammer; brought to the desired form by pecking with hammers or pointed flints; rubbed with coarse grit-rock to remove the hammer marks; smoothed with a fine-grained sandstone; and finally polished, probably with very fine sand and a piece of greasy buckskin. The hole was usually drilled just before the final polishing.

HEMATITE.

The hardness, rich color, and lustrous polish, of hematite iron ore, made it a favorite material among the Indians for objects of practical use as well as for ornaments or ceremonials. Celts large enough for tomahawks are frequent, while grooved axes are not uncommon in this region. As a rule, however, hematite celt-forms attract attention principally by reason of their small size as they seldom weigh more than two or three ounces. They were used for scraping pelts, or for cutting, the blunt end being firmly set in a handle of wood or antler. The celt used as a knife has its edge along the central plane, while

the scraper-celt, used like a plane or adze, has its edge ground flat toward one face, giving it the needed bevel.

Nearly all hematites, of whatever character, are ground down directly from the nodule or concretion though sometimes a specimen is found which has first been chipped into form and then rubbed smooth. The powder thus formed was mixed with grease and used as a paint. At least one site is known (in Franklin County, Missouri), where a vast amount of quarrying was done to procure the softer grade of hematite known as ochre. This needed no further preparation, except to be mixed with water or oil. Very many implements were also made here.

Various forms of hematite are shown in case 16. (See plate vi.)

PLUMMETS, CONES AND HEMISPHERES.

Plummets are so called from their resemblance to the weights used by masons and carpenters; of course Indians never had anything to "plumb". The usual shape is ovoid, some being very slender, others nearly round. Most of them have a groove or a perforation near one end. They seem to have been charms or amulets, valuable aids in bringing rain, trapping game, catching fish, and ensuring good fortune generally.

Cones and hemispheres, like plummets, are named simply from their form and not from any known or imaginable use. Hematite was much in demand for making all these articles, as it was for the small celts; though other materials were frequently utilized, as may be observed in case 16. (See plate vi.)

SPUDS.

The spade-like pieces commonly known as "spuds", await an explanation. Most of them are too fragile and soft for any practical purpose. Others are of hard stone that will withstand very rough usage. Many of the latter show striations such as would be caused by stripping bark from trees, dressing hides, or digging in the earth—uses which have been attributed to them. But their symmetry, scarcity, and high polish, would seem to put them in the ceremonial class.

There is a very fine specimen in case 12. (See plate vii.)

CHIPPED IMPLEMENTS.

For all men to whom iron was unknown their most important possession was "flint"—a general term which in an archaeological sense only, includes chalcedony, jasper, chert, hornstone, basanite, and several other varieties of siliceous stone. With trifling exceptions all that occurs in Missouri is chert; in southern Illinois, besides chert there is hornstone and white novaculite; while Arkansas furnishes, in addition to all these, colored novaculite and quartz crystal.

Flint, as thus defined, is abundant in the lower Coal Measure rocks from Pennsylvania and Ohio southward to Alabama, then north and west through Missouri and Kansas; it is sometimes stratified but more frequently occurs in nodules or concretions. Beyond the limits mentioned it is rather rare; quartz, quartzite, argillite, rhyolite, and even coarser rocks took its place to a large extent in the East, while in the western States obsidian and agate were mostly used.

As flint lying on or near the surface shatters easily and so does not flake well, the Indians were accustomed to dig for that which was protected from the weather by a covering of earth. There are very large quarries in several States; the most extensive in this region being in Jefferson county, Missouri, and in Union county, Illinois.

FLINT WORKING.

In making flint implements, a suitable fragment was selected, and spalls were struck off from it with a stone hammer. After the "blank" or core was reduced as much as possible in this manner, flakes and chips were pressed off around the edge with a tool of bone or antler, or the tooth of an animal, until the implement was completed. Details of the work varied according to the nature of the stone or the use for which it was intended. Very thin specimens with keen edges could be produced thus; and when they became dulled were readily sharpened with the flaking tool. This second chipping is plainly seen on many pieces.

Spalls or large flakes were often serviceable as knives or

scrapers without further preparation; though they usually show re-chipping along the edges or have notches for securing them to handles or shafts. Slender flakes with keen points and edges sharp as broken glass made good lancets and razors, or when set into a slender bone or piece of wood were used as harpoons or hooks in catching fish.

Hatchets or tomahawks, picks, chisels, and wedges, were often made of flint. Some are shown in case 13. (See plate vii.)

In making large implements such as disks, hoes, or spades, the flaking was done with heavy stone hammers; but instead of striking the block directly, a piece of wood, bone, or other tough material was usually interposed in order to better control the course of the fracture.

FLINT DISKS.

From a small mound in Ohio more than 8,000 large flint disks were taken. In Illinois, more than 6,000 were at the bottom of a mound thirty feet high; and two lots, one of 1,500, the other of 3,500, were buried in pits five feet deep but with no mound over them. Specimens from each deposit are shown in case 47. They range from three to eight inches in length, with varying breadth, some nearly circular, some with the length twice the width. Scarcely any of those from Ohio bear the slightest indication of use; but many from Illinois have blunted edges, or secondary chipping which suggest wear and re-sharpening.

Hundreds of such deposits, some containing less than a dozen, some yielding several hundred pieces, have been unearthed in various parts of the country; a few in mounds, but most of them buried in the natural earth.

Archaeologists are undecided whether to regard these disks as unfinished specimens or as a kind of offering or sacrifice. The great care exercised in the burial of some of the deposits and the size of the mound erected over them favor the latter theory.

Perhaps the true explanation is that most of them belonged to workers in flint who buried them until there was a call for

such ware; or that when their possessor died they were interred with him in the belief that whatever a man owns is his, whether he be living or dead, and no one else has any right to it.

The smaller oval or triangular pieces so often buried in large numbers, were undoubtedly placed thus for the purpose of keeping them in workable condition until there was a demand for them; notches could then be made in any manner desired.

A few such "blanks" are shown in case 43.

THE MONTEZUMA DISKS.

In case 45 are nearly 1,200 chert disks found at the bottom of a mound 28 feet high at Montezuma, Illinois. With them were many large bone perforators; all were in connection with human skeletons enclosed in a vault made of logs. Many of these specimens are quite ready for any ordinary use; others are roughly finished. If this fact has any significance at all it supports the idea they were the personal property of individuals entombed here. (See plate viii.)

HOES AND SPADES.

The popular idea that Indians lived entirely by hunting, fishing, and gathering the spontaneous products of the earth, is true of only a few. Most tribes depended more or less upon agriculture for subsistence.

In cases 1, 3 and 5, may be seen a fine collection of hoes and spades which were used in cultivating the soil. Thousands of these objects have been found throughout the area including eastern Missouri, the lower Wabash valley, central Mississippi, and southern Arkansas. Most of them are made of chert from Union county, Illinois, where car loads of spalls and unfinished pieces remain on the old workshops; though the material of which some of them are made occurs in the valley of the lower Cumberland. (See plates viii and ix and No. 6, plate xiii.)

It is probable that spades, like disks and small oval blades, were usually individual property, intended for sale. In the region where they are most plentiful caches of them are often discovered.

The most common form of spade has an oval outline with rounded or pointed ends. Hoes are usually, but not always, side-notched to permit firmer lashing of a handle.

In most parts of the country there is no stone suitable for such tools, so recourse was had to wood, large flat bones, and tortoise or turtle or mussel shells. These, being perishable, have mostly disappeared.

KNIVES, SPEAR HEADS AND ARROW HEADS.

In a collection of small "flints", as they are generically termed, there appear to be almost as many shapes as specimens, no two or them being exactly alike. Yet there are only a few distinct types, and all these are evolved from two simple forms—the pointed oval or "leaf-shape", and the triangular. These may be modified to make two intermediate forms; that is a blade with curved edges may have a straight base, or one with straight edges may have a curved base, as shown in figure 2.

From these four patterns all the small flint implements may be fashioned with a few touches of the flaking implement; some forms are illustrated in figure 3.

This will be made plain by filling the notches with wax, or by drawing an outline of the object without regard to the indentations. As any one of the four primary forms may be firmly fastened in a shaft or handle, notches do not seem to be strictly necessary; perhaps in some cases their shape, size, or position, would serve to identify the tribe or person to whom the implement belonged.

The various parts of flint implements are designated by certain terms as shown in figure 4.

Only the smaller pointed flints, two inches or less in length, like those shown in cases 17, 27 and 37, could be used as arrowpoints. There is a limit to the strength which a man can exert in drawing a bow, and a slender or small projectile will penetrate the body of an animal whose thick hide would be proof against a larger one propelled with the same force. The heavier specimens were for spear-heads, daggers, and knives.

There was probably a distinction between arrowheads for different purposes; it is said that among some modern tribes

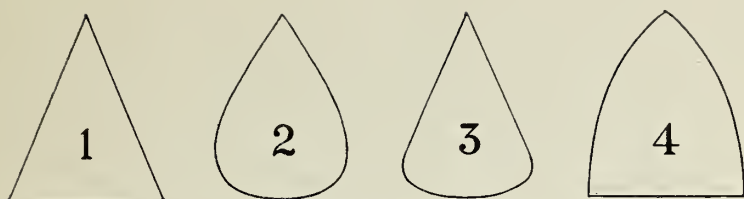


Figure 2

war arrows were slightly fastened so they would remain in the wound when the shaft was withdrawn; while hunting arrows were firmly bound in order that they might be

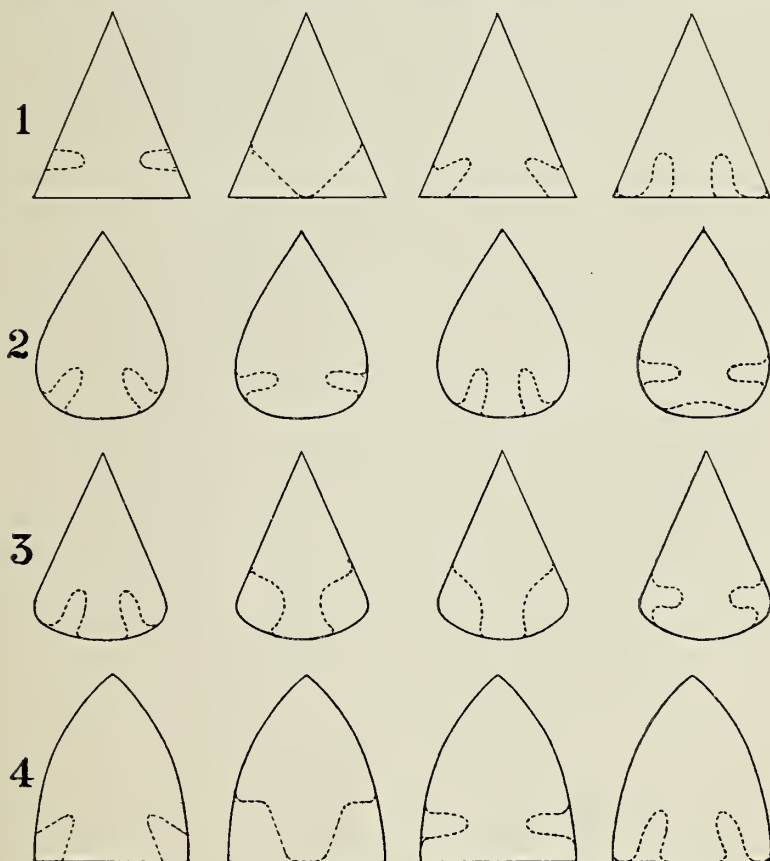


Figure 3

easily pulled out and used again without remounting. In the latter, the shaft, by striking against weeds and bushes, would cause the blade to lacerate the internal organs, thus producing abundant hemorrhage and quickly exhausting the animal. Slender flints with wide base or long barbs, like those in case 15, are excellent hunting arrows as they will penetrate deeply and hold firmly.

BUNTS AND SCRAPERS.

Arrowheads with the forward end rounded or squared instead of pointed and with the edge at the middle of the blade were for stunning or killing birds or small animals without injuring the plumage or fur. Specimens similar in outline but with the edge at one face like a chisel, were used as scrapers for smoothing wood, cleaning small hides, or removing scales from fish. Very many of these are made from broken arrowheads. Flakes showing no marks of work except this chisel-like edge were also scrapers. Both bunts and scrapers are in case 25.

SERRATION AND BEVEL.

The serrated or saw-tooth finish on flints has no significance unless it is that these may be better adapted for cutting some substances than are smooth-edged ones of the same general pattern. The serration is merely the result of leaving wider spaces between the points at which the flaking tool is applied.

Many flints have the edges beveled at an angle of about 45 degrees. It is commonly supposed this is for the purpose of giving them a rotary motion when they are shot from a bow; but very few of this type are small enough for arrow points, and, besides, the rotary or "rifling" effect is usually produced by binding spiral rows of feathers at the opposite end of the shaft. The bevel is almost invariably to the

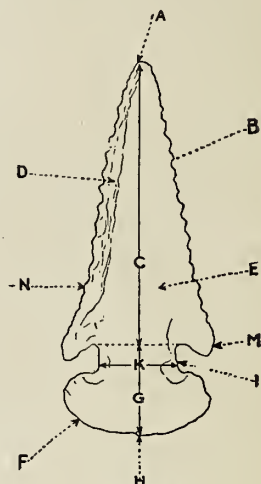


Figure 4

A, point; B, edge; C, face; D, bevel; E, blade; F, tang; G, stem; H, base; I, notch; K, neck; M, barb or shoulder; N, serration.

left; when the flint is properly hafted and held in the right hand this shape brings it into correct position for removing the hide of an animal. Further, the blade is nearly always thick, with a strong stem; it will stand rough usage and can be forced between the pelt and the flesh or into the joints, with but small risk of breaking. So these implements may properly be called skinning knives.

Both serrated and beveled types are exhibited in case 25. (See plate xii.)

PERFORATORS.

Flints with slender spike-like blades of the kind shown in case 15, are classified as drills, awls, needles, etc.; but as no specific use can be assigned to any it is best to call all of them perforators. Those with sharp fine points would be excellent for making holes to pass threads through skin or leather; but most of them are too fragile to have been used as drills. Slender pieces, pointed at both ends, could replace hooks in fishing, a line being attached at the middle. Widely different forms, however, from awl-like to flat thin blades, are worked and polished on points and edges as if used to drill stone. Thick strong specimens with triangular or diamond section are well adapted for making holes in shell, slate, and material of similar hardness. Holes were also drilled with wood, reed, horn, antler, bone, and copper, with sand as a cutting medium. A solid drill will make a conical hole while a tube will make one with uniform diameter. The latter is more rapid in operation for it will cut a groove but little wider than its own thickness, forming a core which falls out when the perforation is completed.

Perforators were often used as graving tools; shell, bone, wood, and stone, can be carved into very intricate and delicate patterns with them. The largest and finest may have been worn as ornaments. (See plate xii.)

CEREMONIAL FLINTS.

Large, elaborately wrought objects of flint or similar material, too delicate or too ornately finished for practical purposes, were intended for display or for use on formal or solemn occasions. Some of these are shown in case 31. (See plate xi.)

The most remarkable articles of this character ever found in a single deposit are those in case 41. (See plates i and ii.) There were 46 pieces in a grave in Humphreys county, Tennessee. The material of all is a grayish-brown chert, not susceptible of such delicate chipping as chalcedony or agate. The longest specimen, measuring nearly twenty-eight inches in length from point to point is by far the finest example of flint chipping in this grade of stone that has ever been discovered anywhere.

BONE.

Bone, including in this term horn, antler, and teeth, was abundantly utilized for a great variety of purposes. We find arrowheads and spear heads; wedges, celts, and other tools; perforators of various sizes used as needles, awls, or punches; fish hooks; hide scrapers; flakers for working flint; and numerous forms of ornaments.

A representative collection is shown in case 34.

SHELL.

Primitive peoples found that many needed articles could be made from shells of different sorts. They furnished digging-tools; implements for hunting, fighting, or fishing; knives; scrapers; spoons; tweezers; and other objects for practical use. They were also carved into numerous patterns considered suitable for personal adornment, which by trade were widely distributed. In this region, however, stone, especially flint, is so abundant and so much better adapted for aboriginal requirements that shell was neglected except for making small ornaments, mostly beads, and "wampum", the Indian substitute for money.

The specimens belonging to the Society, shown in cases 32 and 34, are mainly from graves near St. Louis. The larger ones are mostly from ocean shells.

POTTERY.

Indians, no less than whites, early learned that vessels are a necessity. As pottery is so easily broken some tribes were satisfied with simple forms crudely made. Others, particularly

those who subsisted largely by cultivating the soil, seemed to take pride in devising and constructing elaborate patterns.

In the manufacture of pottery, shells or quartz pebbles were pounded fine, and either, but never both in the same mass, were mixed with clay. The compound was thoroughly kneaded, wrought into the form desired which varied according to intended use, and decorations, handles, etc., pressed on where wanted. Gourds, rounded blocks of wood, stones, or masses of clay, were sometimes used as molds. Vessels with constricted neck or top were shaped entirely by hand. Cloth was frequently pressed down on the outside, or the clay was patted with a cloth-covered paddle, to prevent it from checking or cracking while drying; the imprint of such fabric may be seen on many vessels, and was no doubt smoothed off of many others. Pebbles or smooth rounded pieces of hard-burned clay were used for shaping and polishing the interior. Stoppers were often made for the water bottles; some may be seen in case 40.

Pottery was also fashioned by working the clay into a roll of uniform diameter and building this up as a rope is coiled; the coils being pinched and squeezed together until they were compact, and the vessel usually made smooth before drying.

American Indians knew nothing of the potter's wheel, or of the art of glazing, though there is often a polish which simulates it closely. Painting with ochre or other coloring matter was common in southeast Missouri and in Arkansas; while in some regions the potters exposed their wares to the smoke of pitch pine or other substance which made it black and glossy.

The pottery in Missouri except that found near the Mississippi river is nearly all poorly made and of simple form, usually that known as "cocoanut" because resembling a cocoanut with one end cut off, and seldom showing any attempt at decoration. Some of it, from mounds along the Missouri river, is shown in case 6. In the same case is a fine vessel from Saline county, of a type not found elsewhere in the State.

It is a common belief that pottery coming from the Missouri-Arkansas district is obtained principally, if not entirely, from mounds. It is true that some mounds, erected as tombs or

monuments, contain such objects; but compared with the total number these are few. The large mounds as a rule yield very little earthenware or anything else; and it would seem that even the few articles found in them were mostly deposited while earth was being heaped up for some other purpose than a burial place. In fact, it is probable that ninety per cent or even more of the mounds in that section were built from some motive which did not include either funeral rites or burial of property.

The principal finds are almost invariably made in cemeteries connected with village-sites, frequently in the immediate vicinity of mounds though often several hundred yards from the nearest one. Usually one, sometimes two, rarely three vessels are found with a skeleton. Occasionally a large number of interments were made in a mound; and when all, or most, of these bodies had objects placed with them the aggregate is quite impressive.

In the vicinity of salt or sulphur springs, Indians were accustomed to make large saucer-shaped vessels of pottery, which they set in shallow holes in the ground and kept filled with the mineral water until a considerable thickness of salt was formed. This was scraped out for use or sale. The type of salt pan is seen in case 50.

The pottery in the collection of the Society is nearly all from southeastern Missouri, northeastern Arkansas, and the American Bottoms opposite Saint Louis. The last was collected mostly by the late Dr. J. J. R. Patrick, of Belleville, Ills.

PERISHABLE MATERIALS.

It must be borne in mind that even the most extensive archaeological collection can represent but a very small proportion of the possessions of aboriginal people. Objects of stone were few as compared with those of wood, fiber, cloth, and skins or leather, all which soon decayed and utterly disappeared.

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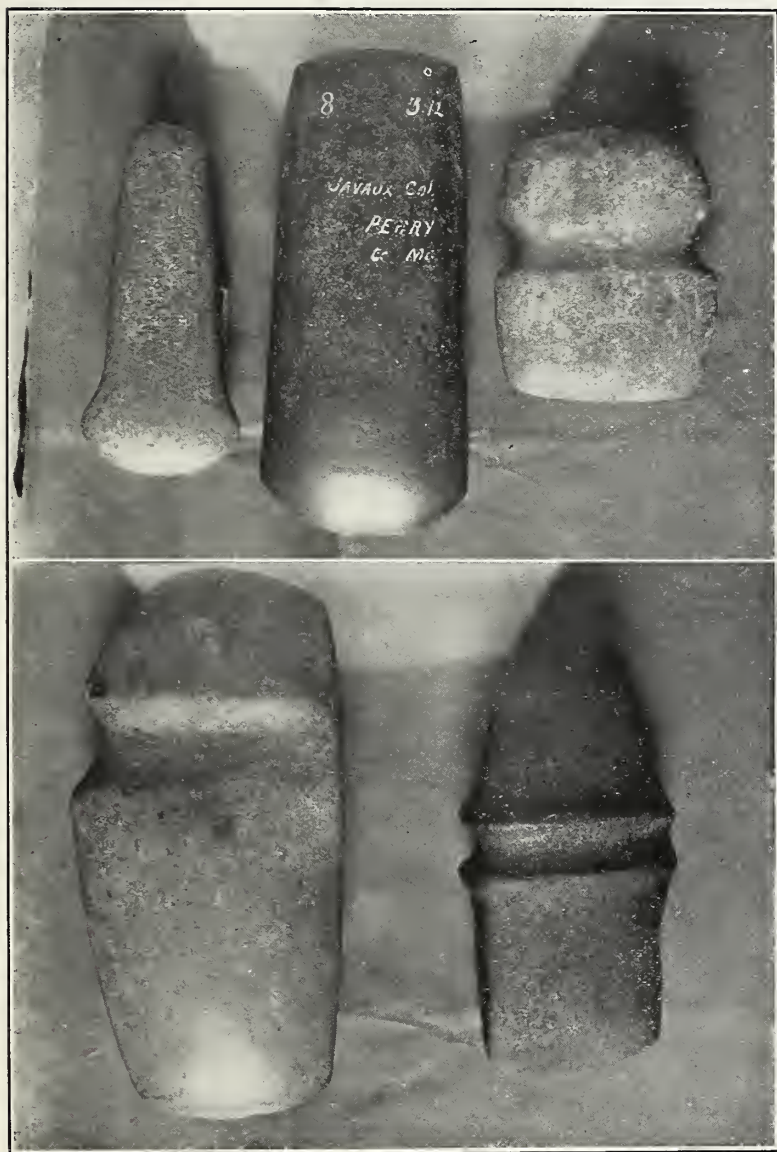


PLATE III

Top: Spud-like Hatchet. Hatchet or Tomahawk (8 inches long), and Grooved Ax.
 Bottom: Grooved Ax. Double Edged Ax (7 inches long).

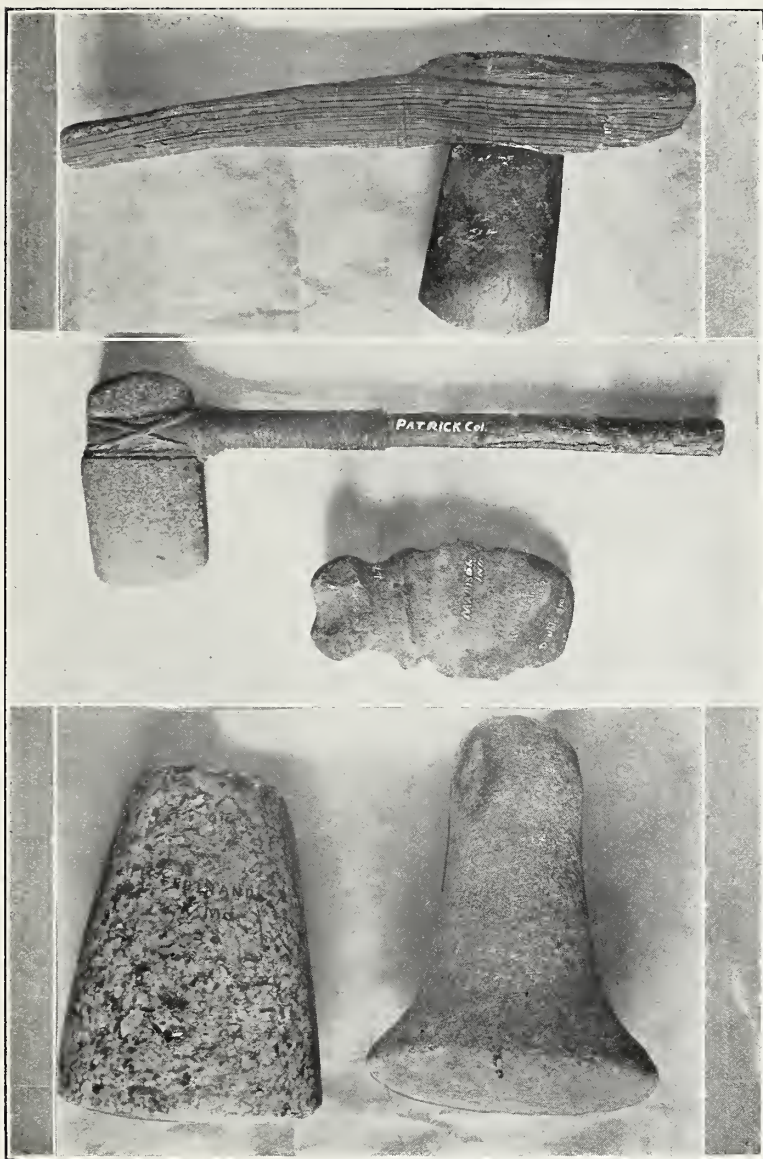


PLATE IV

Top: Stone Hatchet in Portion of Original Handle (13 inches long).
 Center: Grooved Ax, Showing Method of Hafting. Ax with Two Grooves (6 in. long).
 Bottom: Pestles ($\frac{1}{3}$ natural size).

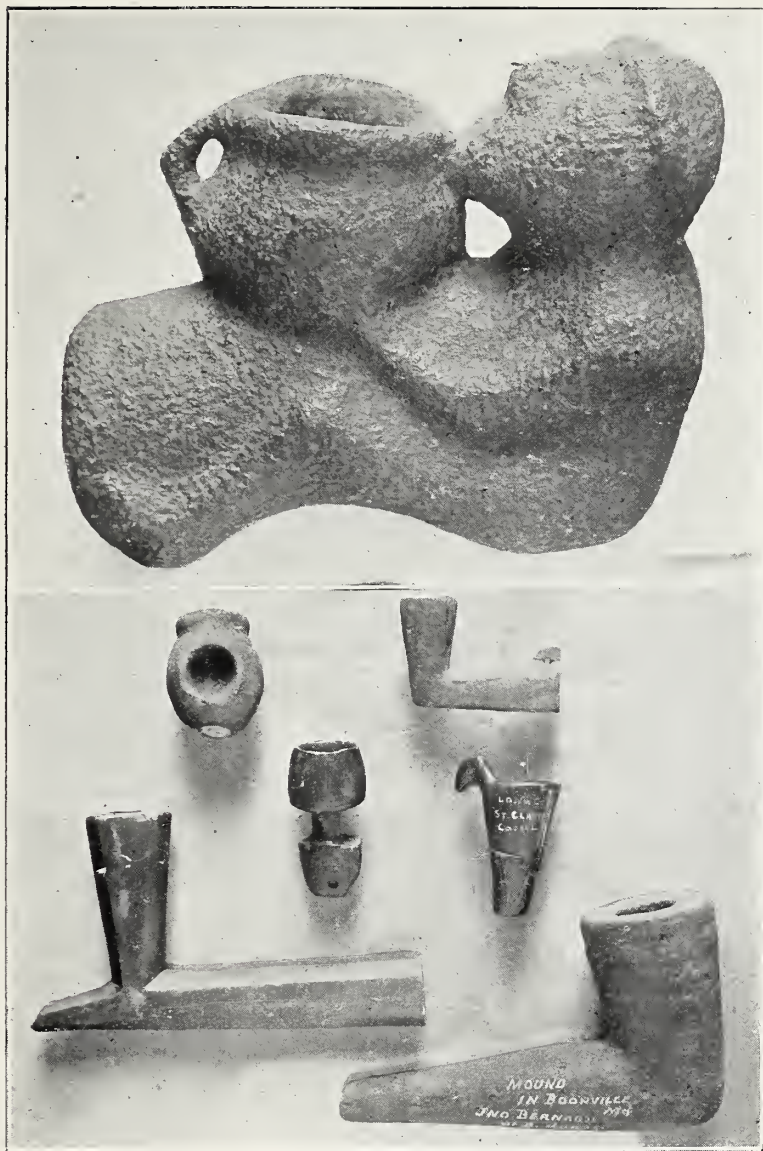


PLATE V

Top: Effigy Pipe (7 inches long).

Bottom: Various Forms of Pipes, Stone and Clay ($\frac{1}{4}$ natural size).

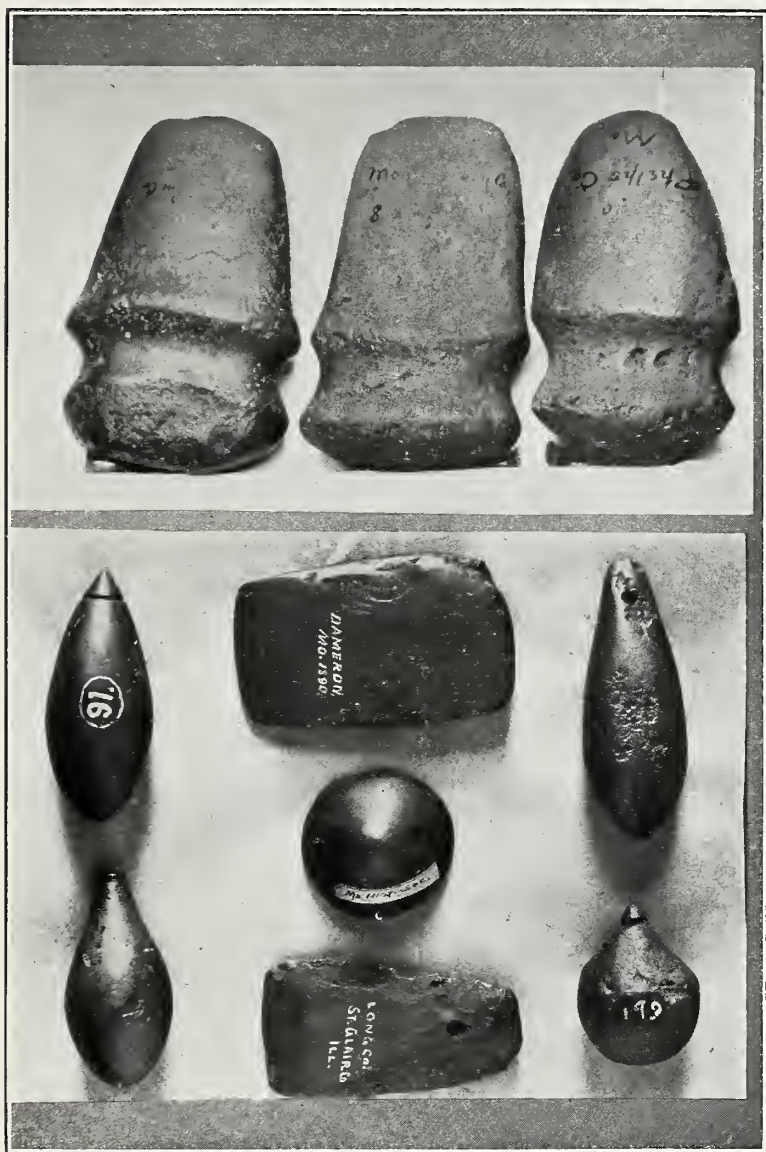
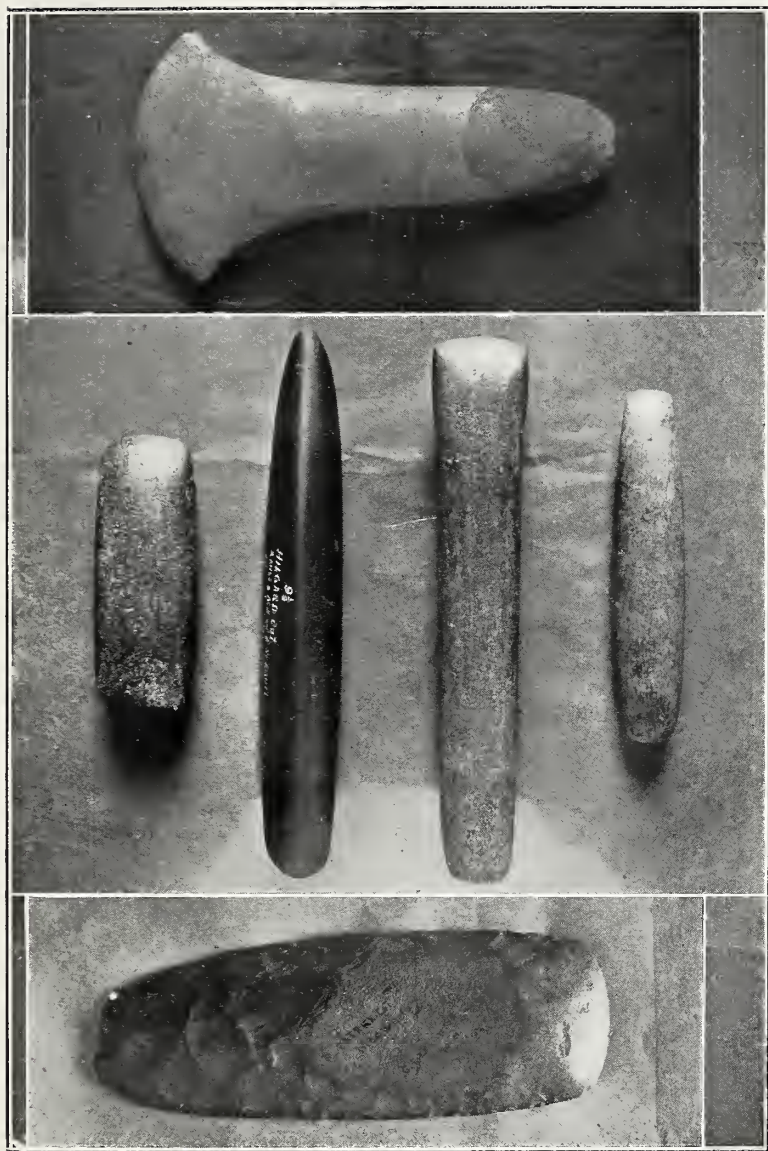


PLATE VI

Upper: Grooved Axes of Hematite ore ($\frac{1}{3}$ natural size).

Lower: Plummets, Celts and Hemisphere, of Hematite ore ($\frac{1}{2}$ natural size).



Chert Hatchet, Chipped and
Polished (9 inches long).

PLATE VII
Polished Stone Chisels or Picks
($\frac{1}{3}$ natural size).

Spud-like object of Novaculite
(8 inches long).



PLATE VIII

Top: Chert Hoe or Cultivator (4½ inches long). Chert Disks from Montezuma Mound, Illinois.

(½ natural size). Chert Hoe (6½ inches long).

Bottom: Chert Hoes (7, 6, 4 and 5½ inches long).



(12 inches long).



(13 inches long).

PLATE IX
Chert Spades or Cultivators.

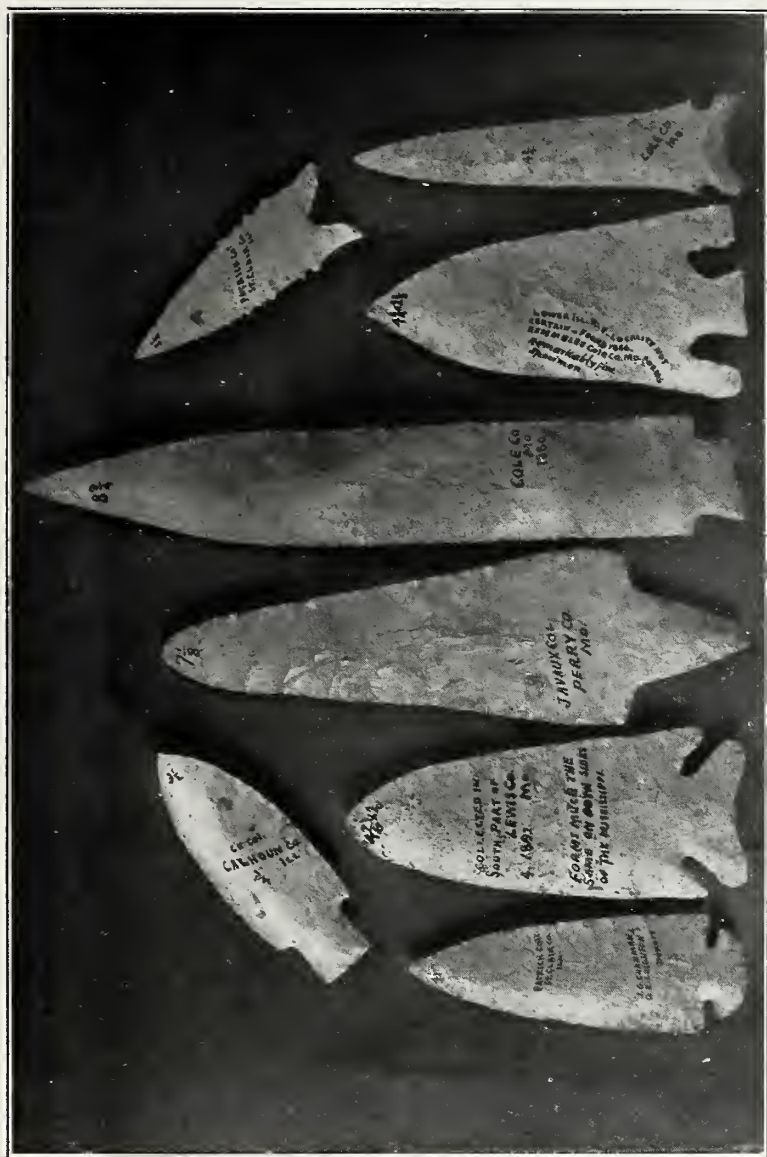


PLATE X
Flint Knives--Missouri Types.

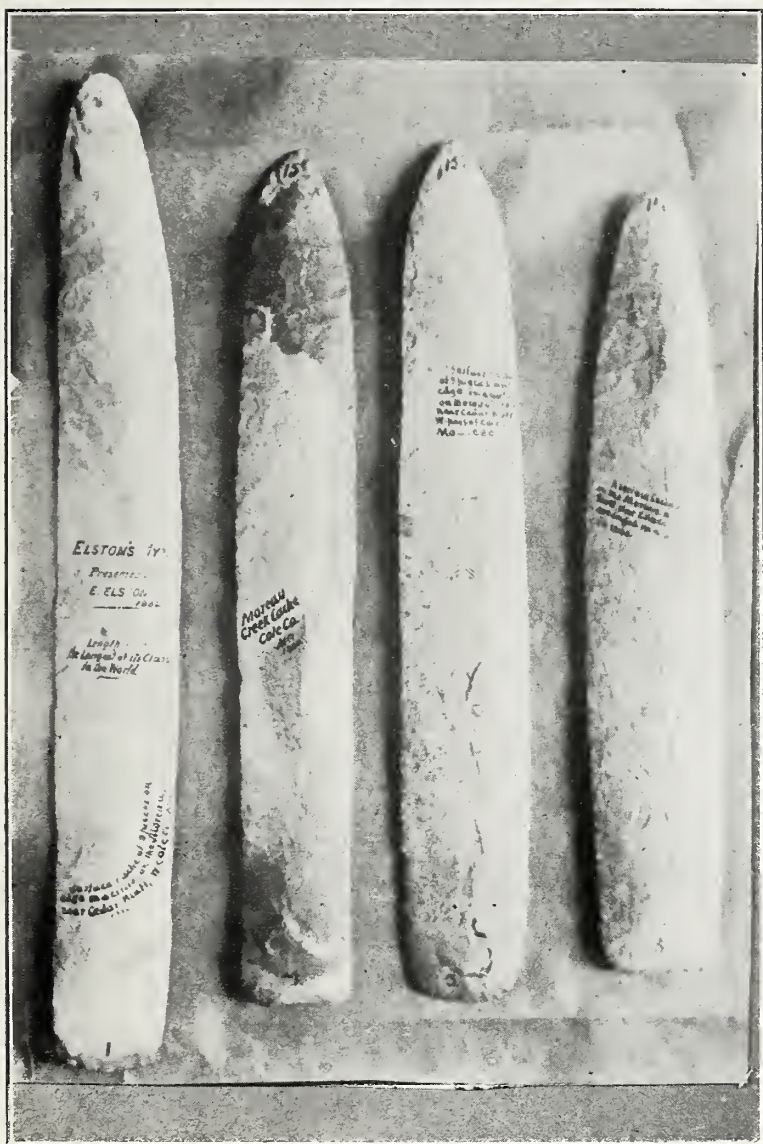


PLATE XI

Part of a Cache on Moreau Creek, in Cole County, Mo. Length of largest, 18 inches.

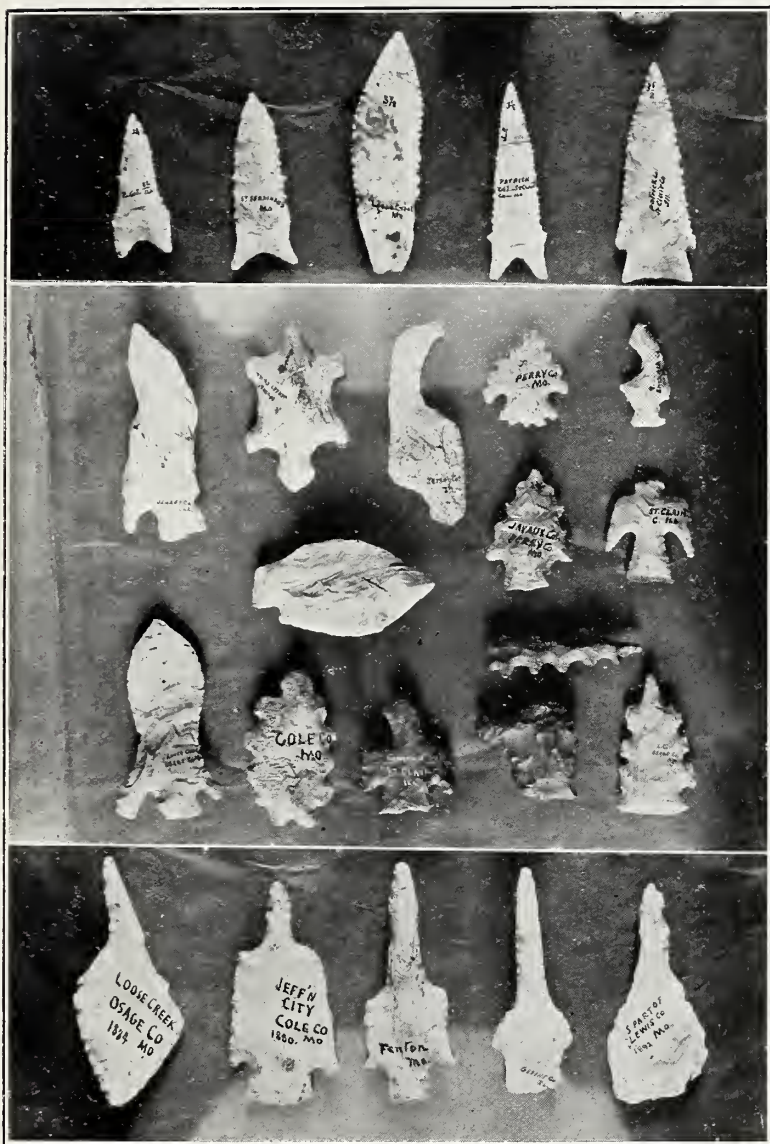


PLATE XII

Beveled and Serrated Flints
($\frac{1}{3}$ natural size.)

Unusual Forms of Flints, Some Representing
Animal Forms ($\frac{1}{3}$ natural size).

Perforators
($\frac{1}{3}$ natural size).

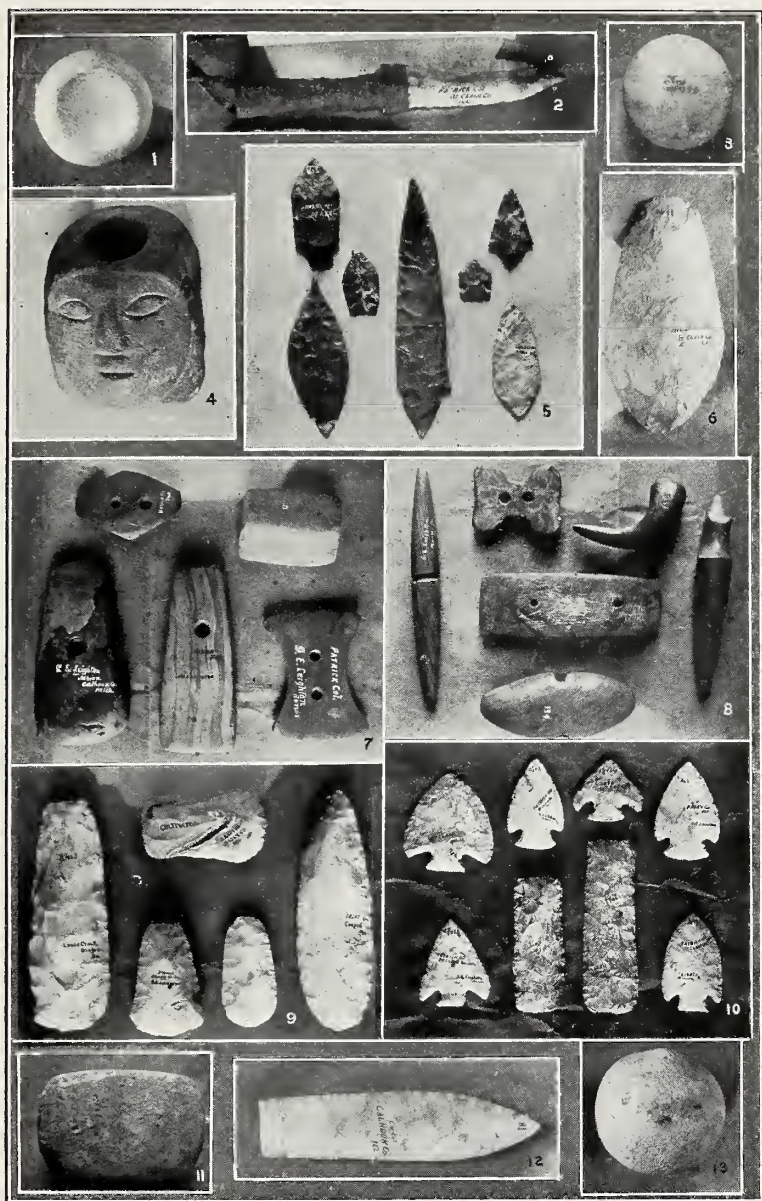


PLATE XIII

1. Disk ($2\frac{7}{8}$ inches). 2. Method of Hafting Knives ($10\frac{1}{2}$ inches). 3. Stone Hammer ($2\frac{1}{2}$ inches). 4. Pipe (Forehead to Chin 3 inches). 5. Knives ($\frac{1}{6}$ natural size). 6. Spade ($9\frac{1}{2}$ inches). 7 and 8. Ceremonial Stones (1-5 natural size). 9. Cultivators or Digging Tools (1-7 natural size). 10. Knives ($\frac{1}{6}$ natural size). 11. Muller ($\frac{1}{6}$ natural size). 12. Knife ($8\frac{3}{4}$ inches). 13. Stone Hammer ($\frac{1}{6}$ natural size).



PLATE XIV
Museum of the Missouri Historical Society.



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